

Quand la recherche spatiale accélère l'innovation sur vos fertilisants

Les Systèmes de Support Vie au Spaceship France - Vers la Transformation des Déchets Organiques en Ressources



*PREPARING HUMAN SPACEFLIGHT & EXPLORING THE MOON
Habitat And Life Support System*

EXPLORATION ET VOLS HABITÉS
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COLMAR
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CONTEXT : ARTEMIS PROGRAM



CNES

France



TECH RESEARCH AND DISCOVERY DOMAINS



Habitat and
Life Support



Robotic Assistant for
astronauts



Crew Health



Nutrition

The Moon is not just a destination,
but a laboratory for Mars and beyond.

EXPLORATORY CORNERSTONE PROJECTS

SYSTEM

LISE

LORA

Sub-system / rack

Medipod

Space Kitchen

Payload / Techno.

GeoAssist

AMAIA

Portable equipment
In Situ Resource Characterization
Geology
Sample collection
AI Expert

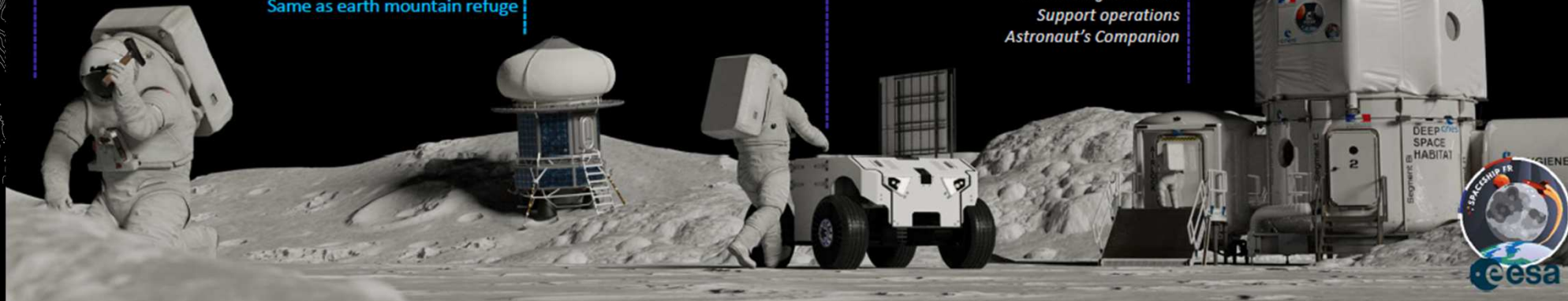
Lunar Integrated Shelter for Exploration
V.1 Power Station
V.2 Lunar Science Laboratory
V.3 Habitat for 2 astronauts for min. 7 days
Same as earth mountain refuge

Lunar Operations Rover Assistant
Bring equipment
Execute tasks
Autonomous navigation
Astronaut's mule

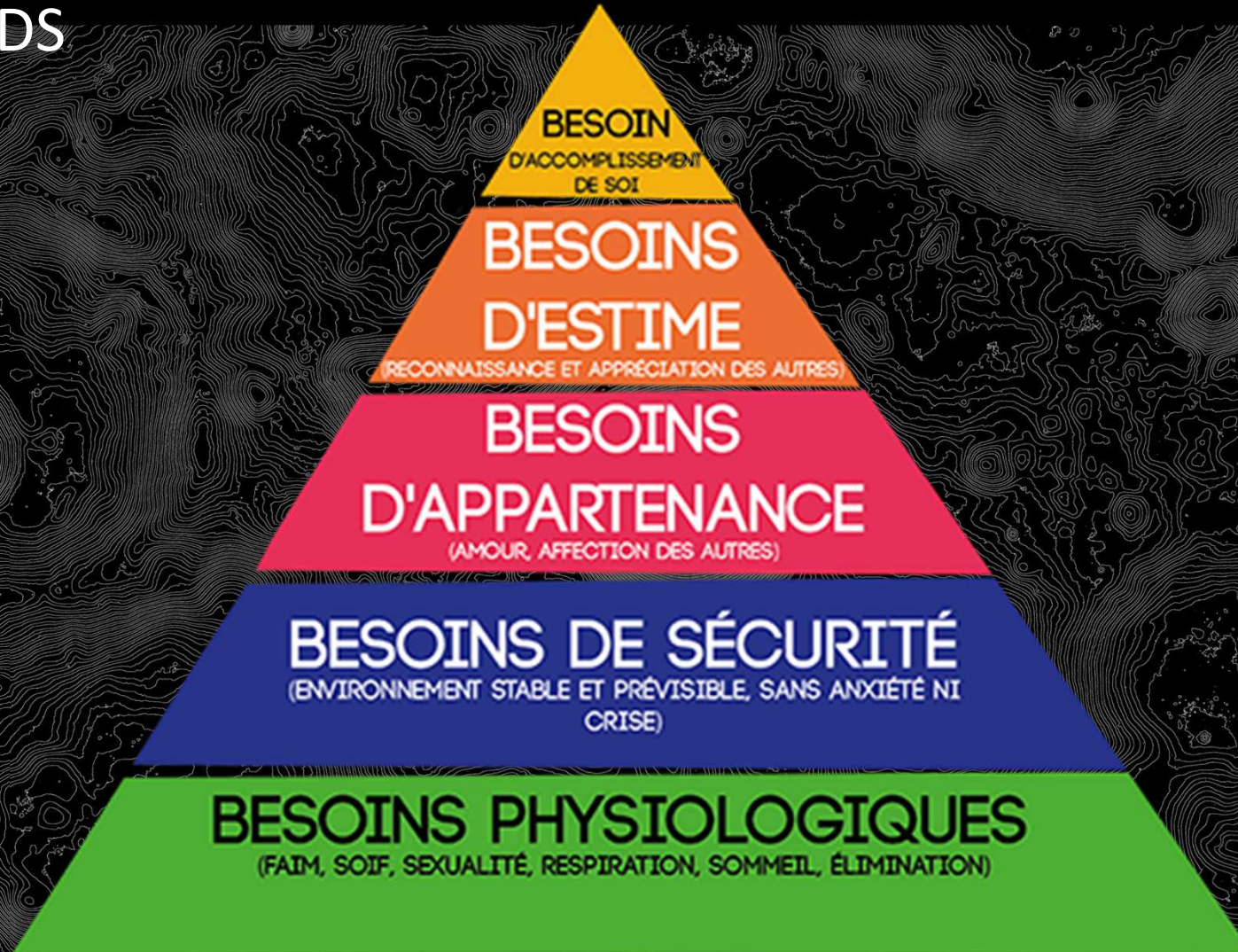
Prevention, Diagnosis, Care
Well-being & performances countermeasures
Earth equipment miniaturization
IT solution for crew autonomy
Astronaut's digital twin

Astronaut Multipurpose AI Assistant
Monitoring & Control
Support operations
Astronaut's Companion

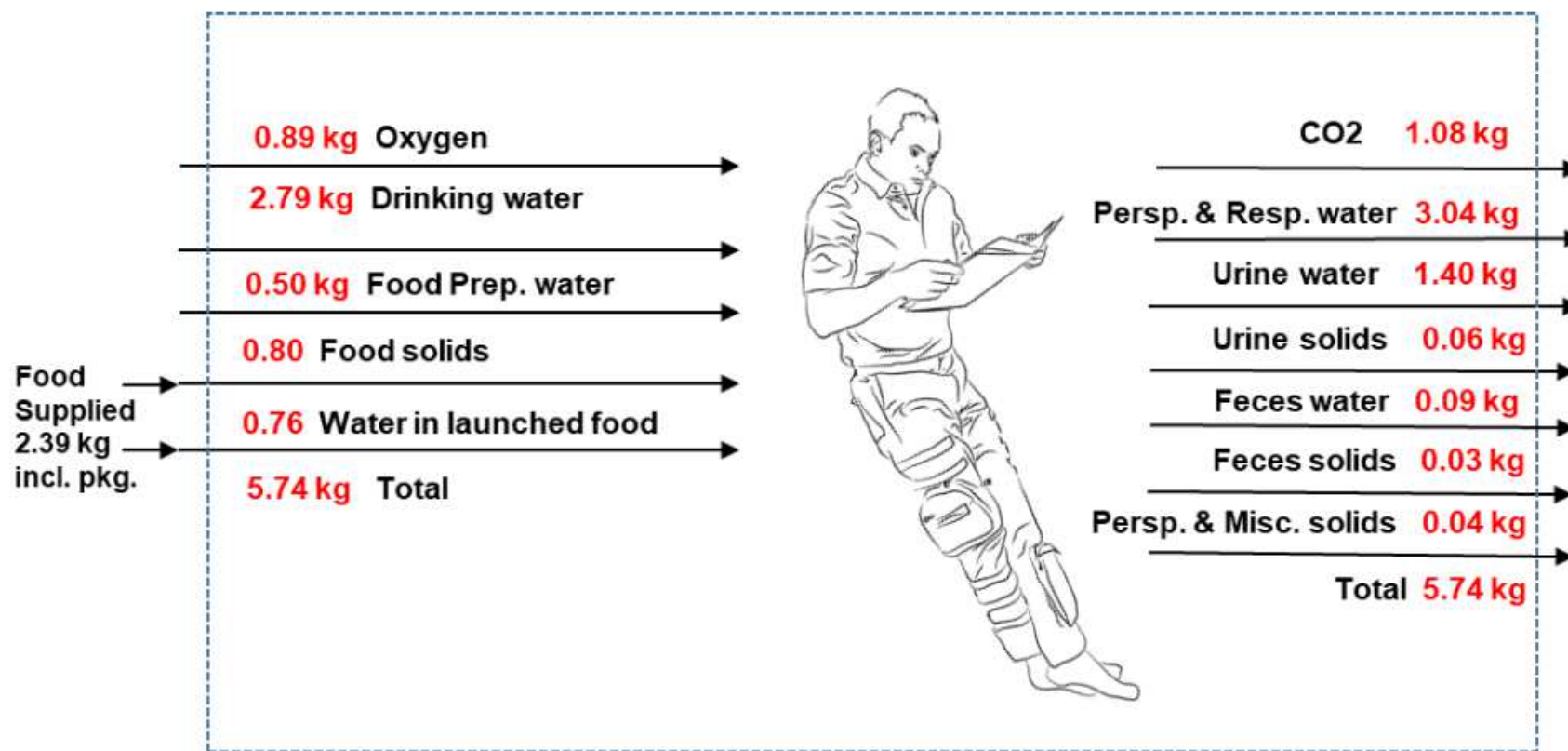
Plant and fungus cultivation
Food processing & preservation
Cooking
By-product recycling
I/F with ECLSS



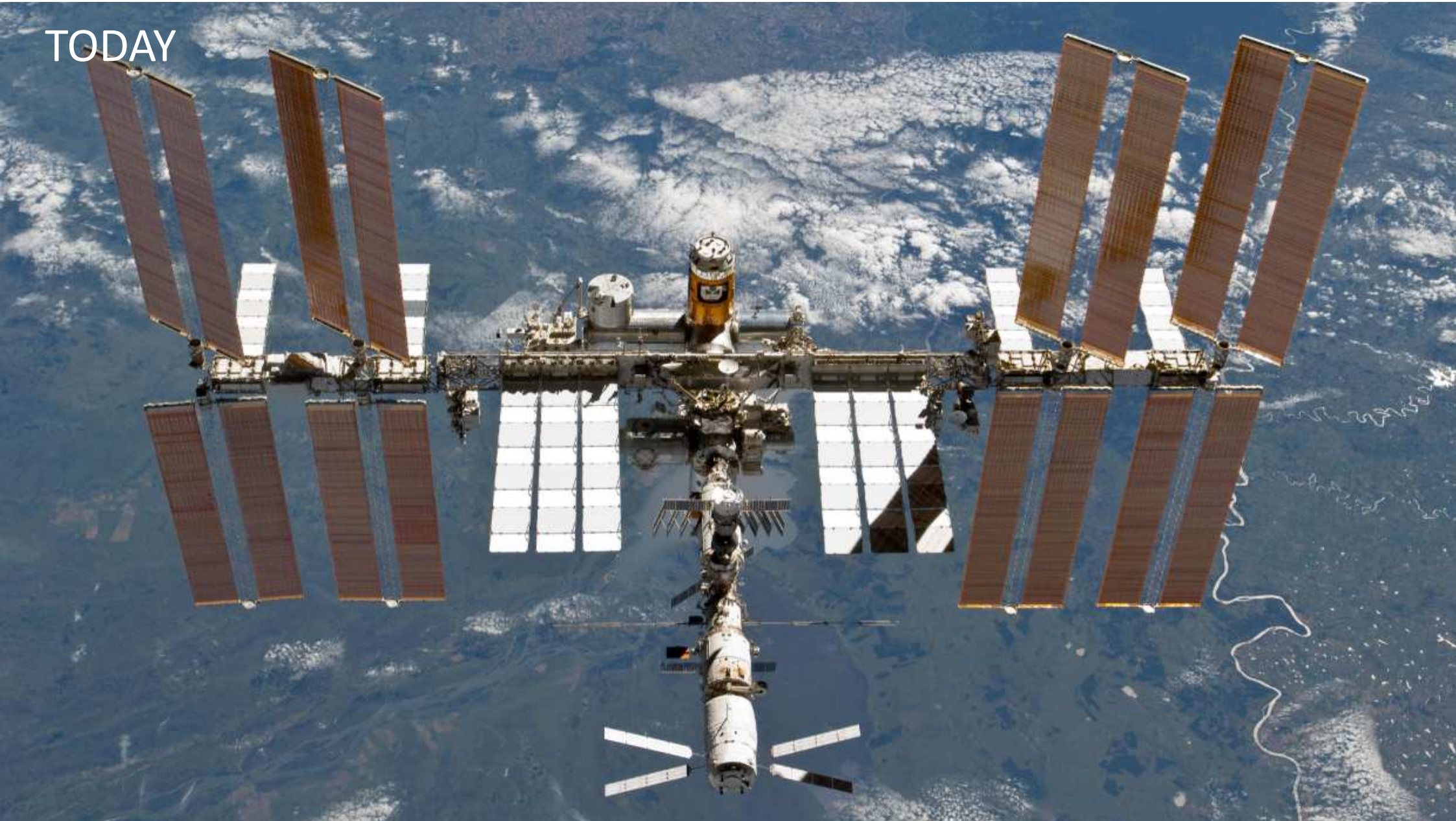
HUMAN NEEDS



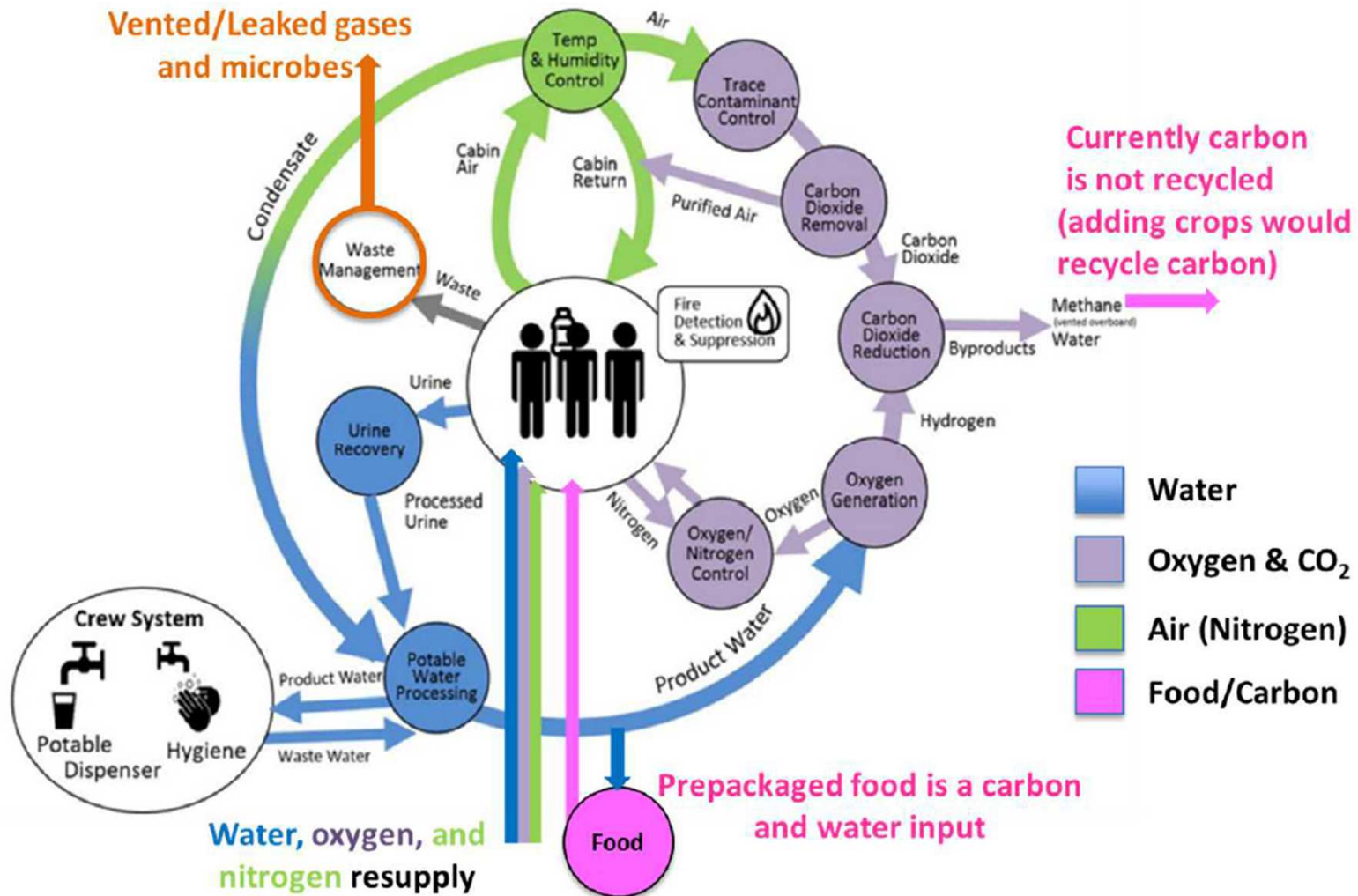
HUMAN NEEDS



TODAY



TODAY



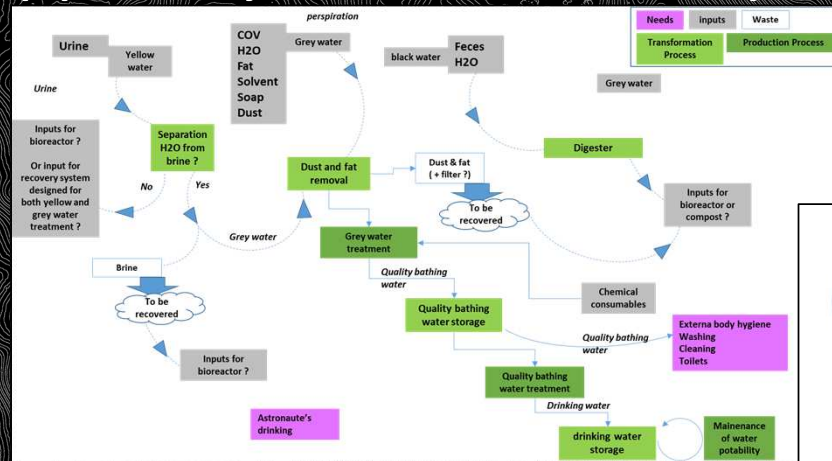
SPACESHIP FR – Life Support System – Work in progress



Water, oxygen, nitrogen, and food (carbon) are the essential materials

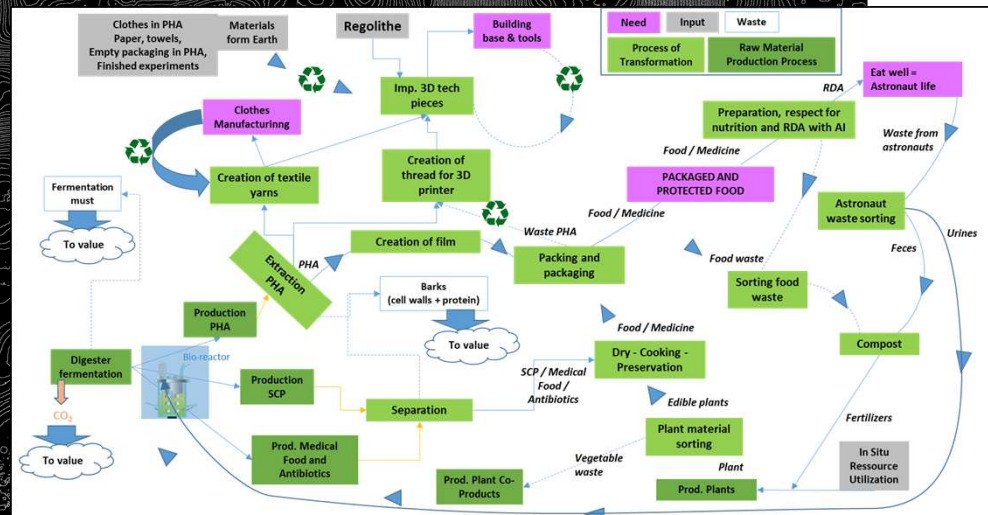
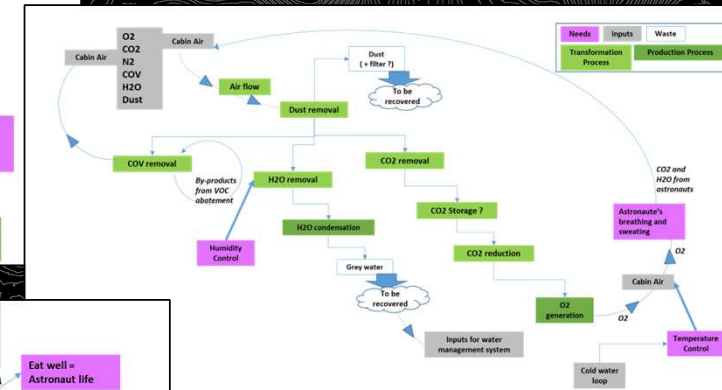
Can be delivered from Earth (open loop)

Can be recycled in the space vehicle (closed loop)



Water Management loop

Atmosphere Management loop

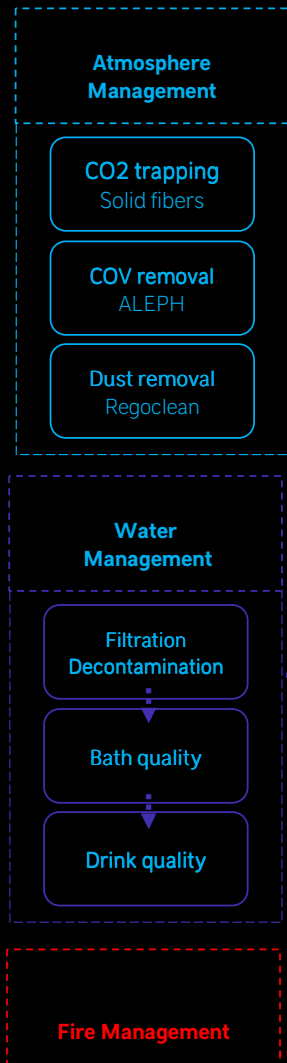


Food and Waste Management loop

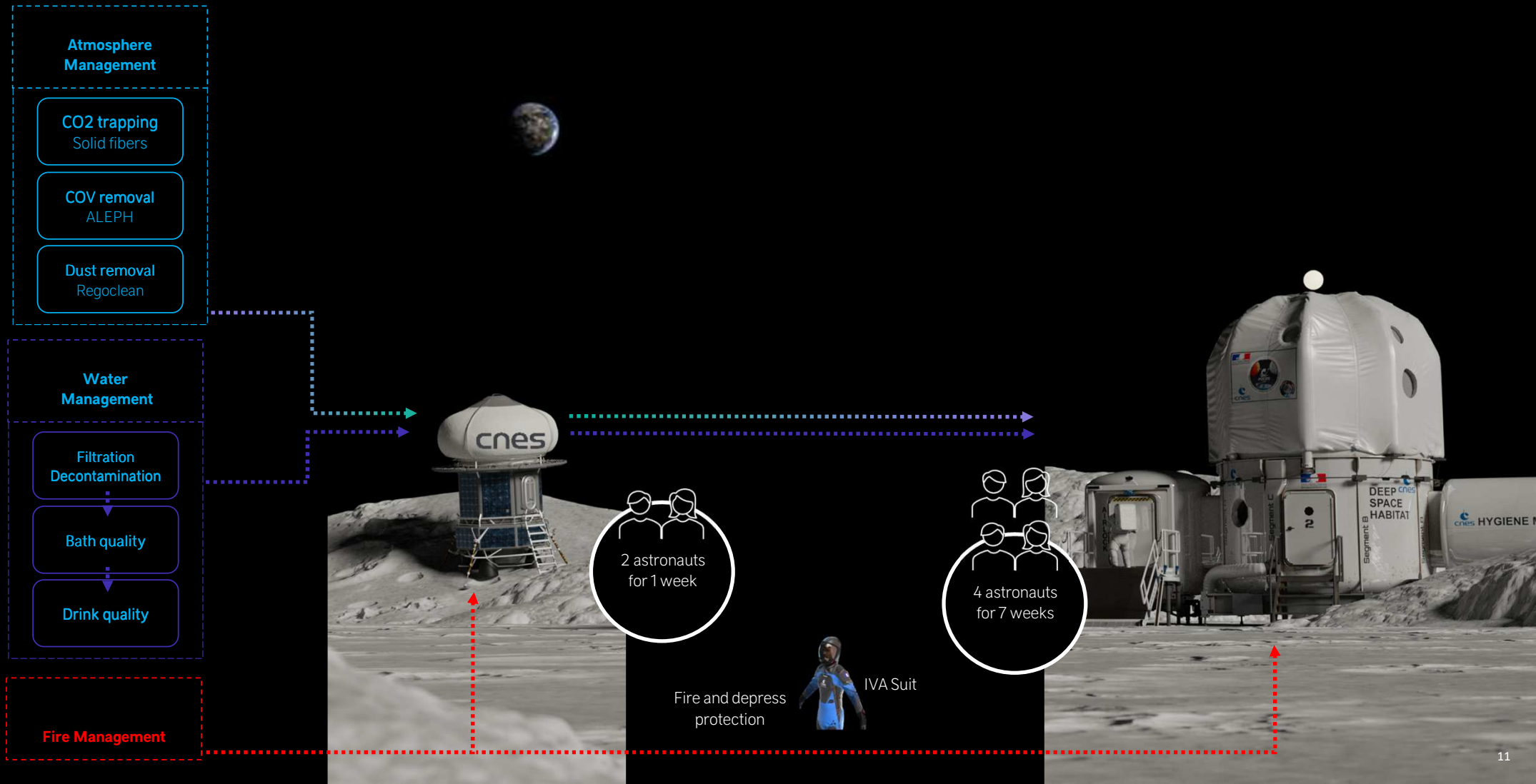
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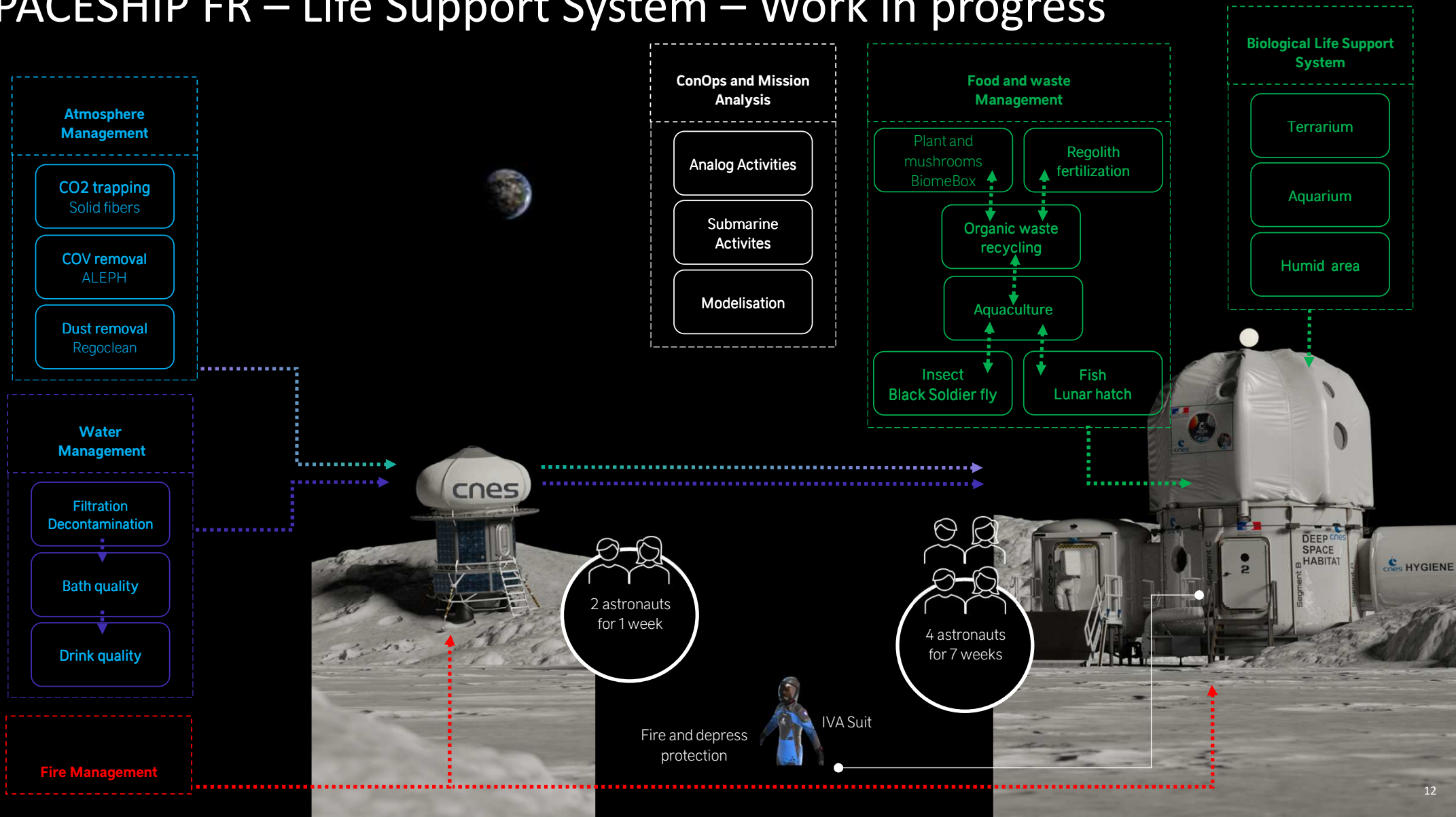
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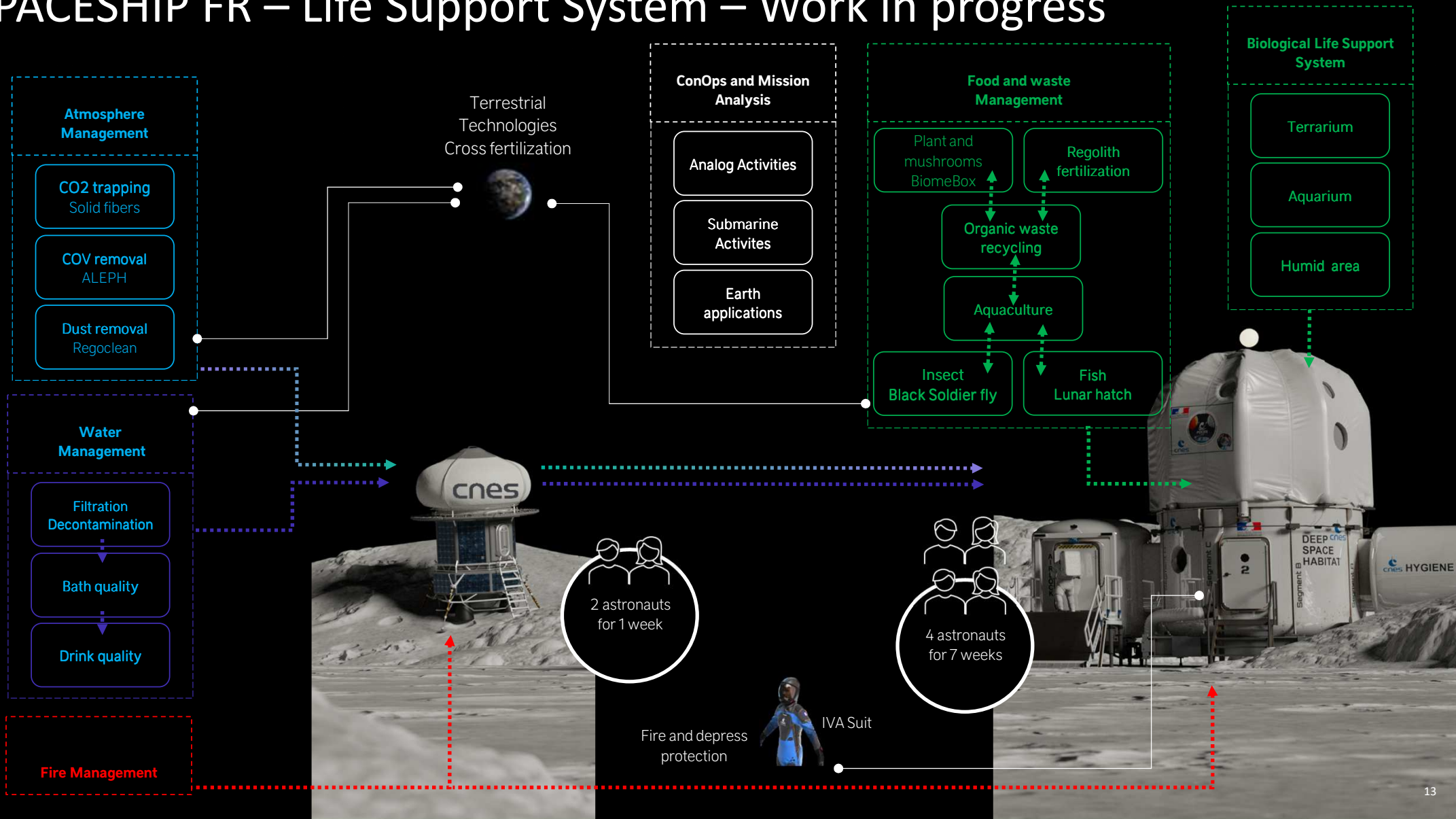
SPACESHIP FR – Life Support System – Work in progress

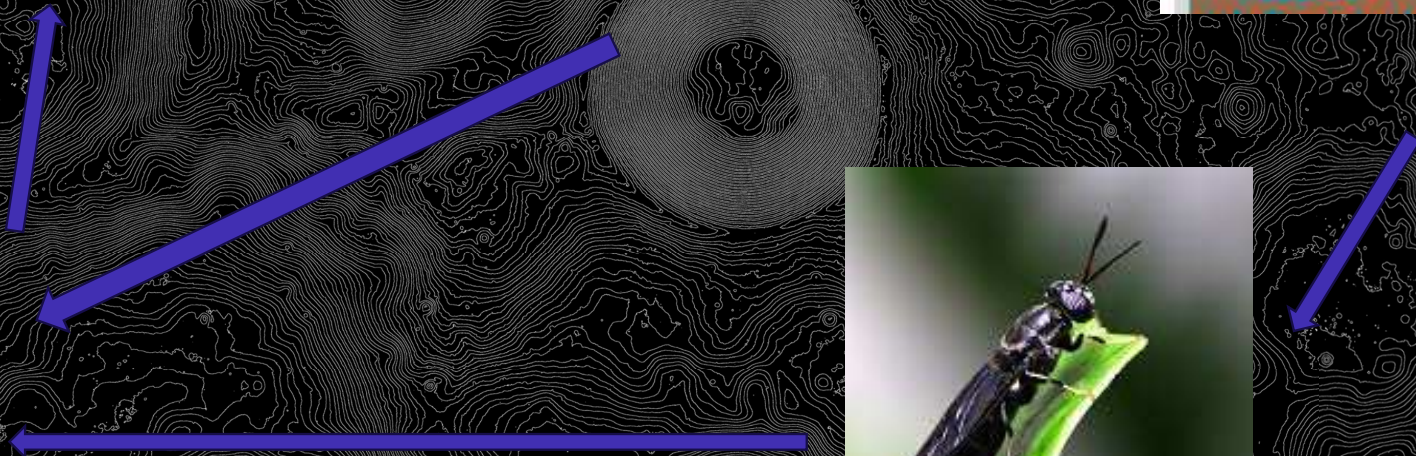
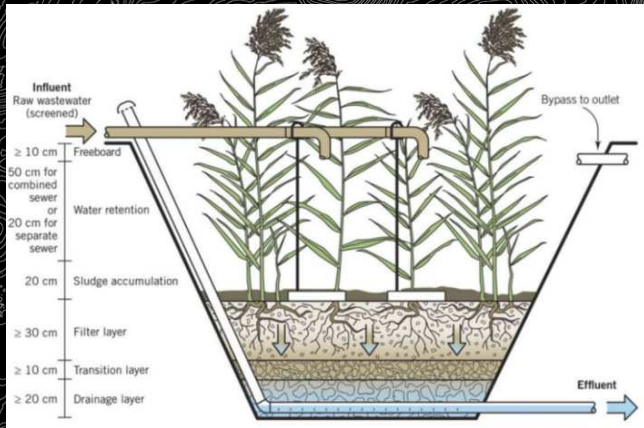


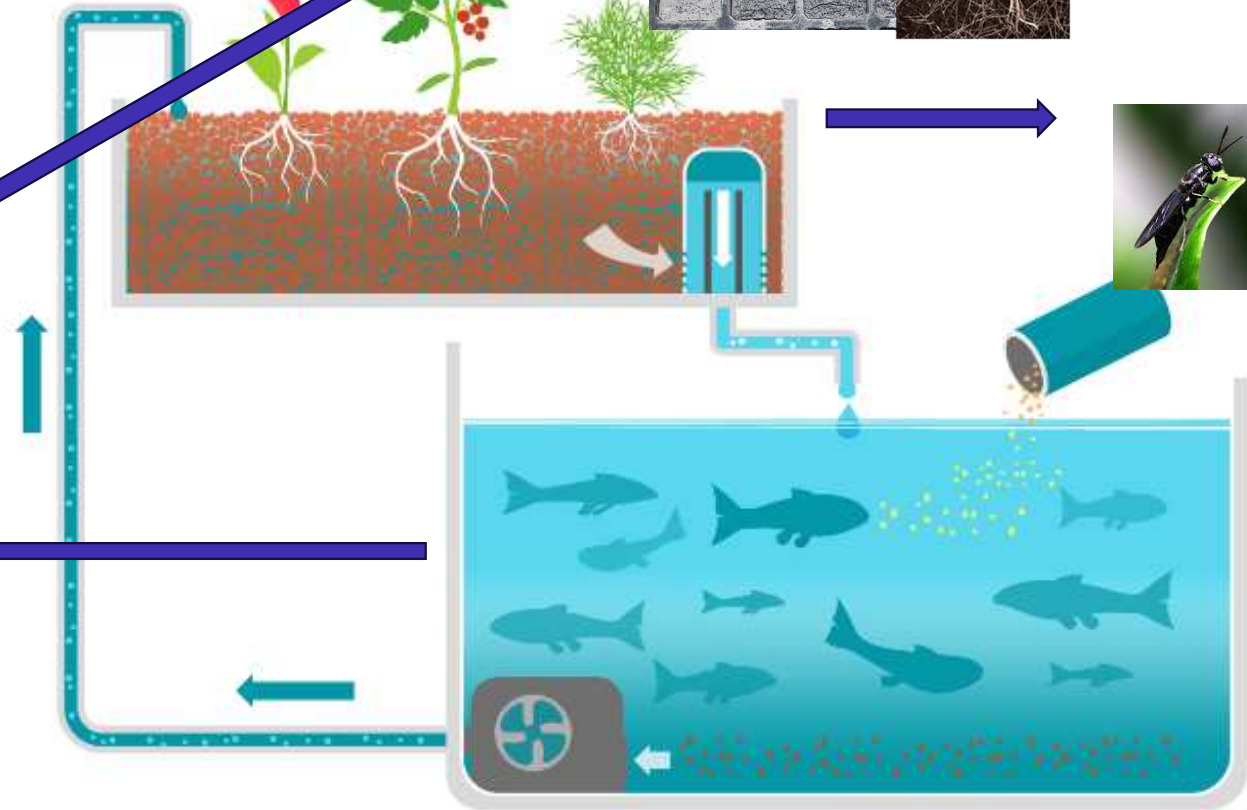
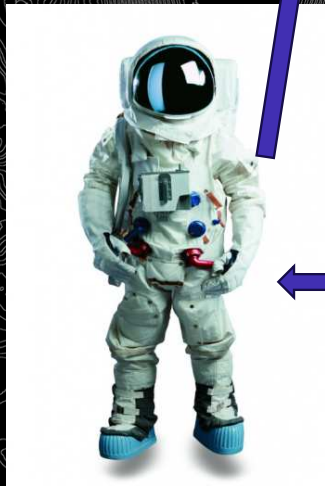
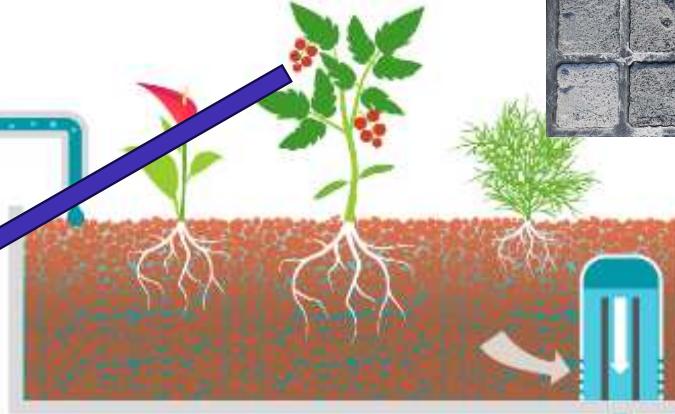
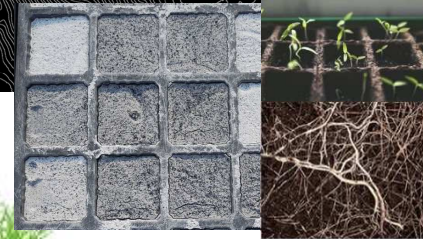
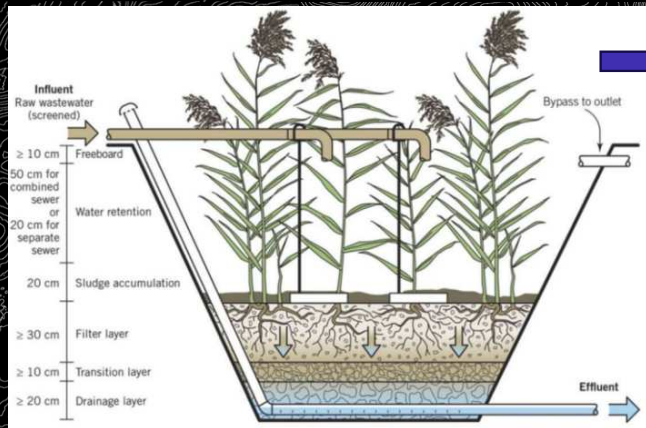
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THANK YOU

Any questions:
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Lunar and Martian exploration, the next orbiting and surface missions at the Moon will feed forward to the first human presence on Mars in a sustainable campaign

